

REMARKS

Claims 1-16 are pending. Claims 1-4, 6-11 and 13-15 stand rejected. Claims 5, 12 and 16 were objected to. Claims 1, 3, 6, 10, 13 and 14 are amended through this response. Claim 2 has been canceled. Applicants respectfully request reconsideration and allowance of the claims.

Statement of Substance of Examiner's Interview

At the outset, Applicants wish to thank the Examiner for the interview conducted with the undersigned on February 10, 2009. Also, the Interview Summary form completed by the Examiner and mailed on February 12, 2009 is hereby acknowledged.

The main prior art reference discussed during the interview included U.S. Patent # 7,030,846 to Lee. In view of claim 1 of the present application, it was submitted that the prior art fails to disclose, teach or suggest, at least, "a gamma converter converting input image data into output image data that . . . have a bit number greater than the input image data." Fig. 8 of Lee shows RGB data correction units (112, 114, and 116), not a gamma converter, that output signals that have different bit numbers from the input signal. Since bit number changing is not recited in connection with the color correction unit of claim 1 of the present application, and Lee does not disclose a gamma converter, Lee, alone or in combination with the other cited references, fails to disclose "a gamma converter converting input image data into output image data that have . . . a bit number greater than the input image data." It was pointed out that FIG. 4 of the present application shows, for example, that if the gray level of the input image data is 128, the 129.4th gray level on the original gamma curve represents the same luminance as the 128th gray level on the gamma 2.2 curve. Each data modifier of the gamma converter maps the input image data with the 128th gray level into the output image data with the 129.4th gray level. The bit number of the output image data is larger than that of the input image data such that decimals under the decimal point of the gray levels as shown in FIG. 4 can be expressed. See, e.g., ¶ [0045] of the present application.

In that vein, it was also pointed out that none of the cited references disclose, teach or suggest a structure of a gamma converter as specifically claimed, for example, in claim 2

(which has been canceled and incorporated into claim 1 of the present application by this response), including: “the gamma converter comprises an R data modifier, a G data modifier and a B data modifier for performing the gamma conversion for the input image data for respective red, green and blue colors, and each of the data modifiers maps the input image data into output image data having a gamma characteristic adapted to the gamma 2.2 curve.” The Examiner seemed amenable to further consider an independent claim, for example claim 1 further incorporating the elements of claim 2, which recites specific elements of the gamma converter including an R data modifier, a G data modifier and a B data modifier.

Claim Amendments

Independent claims 1, 10 and 13 have been amended to recite, in part: “a signal controller including a gamma converter converting input image data into output image data that have gamma characteristic adapted to a gamma 2.2 curve and have a bit number greater than the input image data . . . wherein the gamma converter comprises an R data modifier, a G data modifier and a B data modifier for performing the gamma conversion for the input image data for respective red, green and blue colors, and each of the data modifiers maps the input image data into output image data having a gamma characteristic adapted to the gamma 2.2 curve.” Independent claim 14, which “is a method of claim 1” as stated by the Examiner at page 7 of the Office Action, has been similarly amended. Claims 3 and 6 depend from claim 1 and have been amended to conform to the amendment of the independent claim. No new matter has been added as the amendments incorporate matter found in canceled claim 2 and as set forth in the specification of the present application, for example, at least at: FIG. 3 and ¶¶ [0044-0045].

Response to Claim Rejections under 35 U.S.C. §103

Claims 1-4, 6-11, 13 and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent: 7,030,846) in view of Stokes et al. (US Patent 6,628,828), further in view of Moon et al. (US Patent 6,762,742).

For Claims 1, 10 and 13: The Examiner admits that “Lee does not explicitly teach including a gamma converter outputting output image data based on input image data...” Office Action, page 3. The Examiner then relied on Stokes to disclose the gamma converter.

However, Lee and Stokes, alone or in combination, fail to disclose, teach or suggest the elements of a gamma converter including, for example, specific color “data modifiers” as claimed (see above) and described in the present application.

Furthermore, the cited references fail to disclose, teach or suggest gamma conversion with bit number expansion or that image data inputted into a gamma converter has a bit number smaller than the image data outputted from the gamma converter. It should be noted that the gamma converter according to one or more embodiments of the present application “retrieves a converted data corresponding to an input image data from the look-up table, and it output the converted image data. FIG. 1 shows that the bit number (m bits) of the converted image data is larger than the bit number (n) bits of the original image data RGB in order to enhance the precision of the gamma conversion (emphasis added). See, e.g., ¶ [0034] of the present application. The color correction matrix then performs color correction on the converted m bit image data from the gamma converter. ¶ [0036]. As described in relation with FIG. 4 of the present application, for example, an 8 bit image data with a 128th gray may be converted into a 10 bit image data with a 129.4th gray by the gamma converter in an LCD having 256 grays. ¶ [0051]. The bit number of the output image data is larger than that of the input image data such that decimals under the decimal point of the gray levels as shown in FIG. 4 can be expressed. ¶ [0045].

Hence, Lee in view of Stokes and further in view of Moon do not disclose, teach or suggest the gamma converter recited in Claims 1, 10 and 13. Claims 1, 10 and 13 are patentable over Lee in combination of Stokes and Moon. Applicants respectfully request the 103 rejection to Claims 1, 10 and 13 be withdrawn.

For Claim 14. The Examiner states that Claim 14 “is a method of claim 1 and is rejected on the same grounds.” Office Action at page 7. For the same reasons discussed above with respect to claims 1, 10 and 13, the cited references fail to disclose, teach or suggest, at least: “converting gamma characteristic of input image data to be adapted to a gamma 2.2 curve and having a bit number greater than the input image data, wherein color data modifiers perform gamma conversion for the input image data for respective colors, and each of the data modifiers maps the input image data into output image data having a gamma characteristic adapted to the gamma 2.2 curve,” as recited, in part, in claim 14. As discussed

above, Stokes and Lee (see for example Figure 8 of Lee), alone or in combination, fail to disclose, teach or suggest the structure of a gamma converter including respective color data modifiers, wherein the gamma converter outputs output data with bigger bit numbers than the bit number of input data. Accordingly, Applicants respectfully request the 103 rejection to Claim 14 be withdrawn.

For Claims 3-4 and 6-9: Claims 3-4 and 6-9 depend from Claim 1 and are patentable at least for the reason of dependency on Claim 1. Applicants respectfully request the 103 rejections to Claims 2-4 and 6-9 be withdrawn.

For Claim 11: Claim 11 depends from Claim 10 and is patentable at least for the reason of dependency on Claim 10. Applicants respectfully request the 103 rejection to Claim 11 be withdrawn.

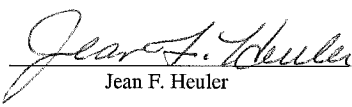
For Claim 15: Claim 15 depends from Claim 14 and is patentable at least for the reason of dependency on Claim 14. Applicants respectfully request the 103 rejection to Claim 15 be withdrawn.

Allowable Subject Matter

Examiner states that “Claims 5, 12 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.” Office Action, page 8. The indicated allowability of Claims 5, 12 and 16 is noted and appreciated. However, Applicants firmly believe that Claims 1, 10 and 14 are allowable, and Claims 5, 12 and 16 are allowable in dependent forms for at least the reason of dependency on Claims 1, 10 and 14 respectively. Applicants respectfully request that Claims 5, 12 and 16 be allowed in dependent forms.

CONCLUSION

In light of the foregoing, Applicants respectfully request that all rejections be withdrawn and that all of the pending claims be allowed. Should any other action be contemplated by the Examiner, it is respectfully requested that he contact the undersigned at (949) 752-7040 to discuss the application.

Certificate of EFS Web Transmission	
I hereby certify that this correspondence is being transmitted to the U.S. Patent and Trademark Office, via EFS Web Transmission, on February 18, 2009.	
 Jean F. Heuler	<u>2-18-2009</u> Date of Signature

Respectfully submitted,



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